and used successfully a slipping plate for use in the principal focus for photographic and visual purposes.

Not only was his time chiefly devoted to the construction of these astronomical instruments, but he turned them to great advantage by showing what could be done with them. Among the most noteworthy of these attainments was the magnificent photograph of the nebula of Orion which he secured in 1883, and for which he won the gold medal of the Royal Astronomical Society. Nebulæ, star clusters, &c., all came under his keen eye, and his researches not only demonstrated the cumulative effect of the photographic film, but showed that a new field of astronomical work was dawning by the employment of reflectors for long exposure photography.

More recently Dr. Common, among other things, turned his attention to the improvements in telescopic gun sights, and in this direction his loss will be keenly felt. He became a fellow of the Royal Astronomical Society in 1876, received the gold medal in 1884, and was president in 1895–96. He was elected a fellow of the Royal Society in 1885, and was an honorary LL.D. of St. Andrews.

Jovial, good-hearted, good-natured, and generous beyond degree in distributing his mirrors to those who would use them, all his friends join with the widow, son and three daughters whom he has left behind in mourning the loss of a personal friend.

William J. S. Lockyer.

PROF. C. A. BJERKNES.

In Nature of May 28 mention was made of the death of Prof. C. A. Bjerknes, of the University of Christiania, at the age of seventy-eight.

Though occupying the chair of pure mathematics, it was to applied mathematics, and especially to hydrodynamics, that Bjerknes devoted the greater part of his attention and study. He studied mathematics at the University of Göttingen early in the "fifties," his teachers including Riemann, who lectured on Abelian functions to a class of three only—Schering, Bjerknes and Dedekind—presumably between 1851, when Riemann obtained the doctorate, and 1859, when he was appointed ordinary professor, also Lejeune Dirichlet, who lectured to Schering and Bjerknes in 1855–56, and who proposed to them the problem of the ellipsoid in a steady fluid current. Solutions were given by both Schering and Bjerknes, but it was not until 1873 that Bjerknes completed his work on the problem of the general motion of an ellipsoid in fluid.

Bjerknes was at an early date attracted by the problem of replacing action at a distance by action of an intervening medium, and he exhibited considerable originality in the energy with which he took up the advancement of a doctrine which at that time received little support. The discovery that a sphere could move through a perfect liquid without retardation having shown that the existence of an ether does not involve a violation of Newton's first law, Bjerknes set to work to investigate the forces acting between two spheres moving in liquid, and in particular he developed the notion of "pulsating" spheres, *i.e.* spheres fluctuating periodically in volume, finding that between such spheres attractions and repulsions exist, obeying the law of the inverse square, and their sense being dependent on whether the phases are the same or opposite. The discussion of all the terms entering into the expressions for the forces was not completed until a comparatively late date, and in the meanwhile dynamical theories of physical phenomena have developed in other quarters, and ethers differing in their properties from ordinary matter, and in particular from matter in a fluid state, have come into existence. But another interest was aroused in these hydrodynamical attractions and repulsions by the experimental verifications of the results of the theory which were successfully carried out by both Prof. C. A. Bjerknes and his son, and of which we hope to give a fuller account shortly. These experiments were commenced in 1875, using rough and ready methods, but the apparatus have been gradually improved, and a number of papers on the subject were published, chiefly in the period 1878–1880, by Bjerknes and Schiötz in the Christiania *Forhandlinger.*

Among Bjerknes's other writings we note the biographical notice "Niels Henrik Abel; tableau de sa vie et de son action scientifique," published at Paris in 1885. Prof. V. Bjerknes has for many years collaborated with his father, and the second volume of his "Vorlesungen nach C. A. Bjerknes' Theorie" only appeared quite recently.

G. H. Bryan.

NOTES.

Mr. Balfour has accepted the presidency of the British Association for the meeting to be held at Cambridge in 1904.

Prof. Ray Lankester has been elected a Foreign Associate of the National Academy of Sciences, Washington, and a member of the American Philosophical Society, Philadelphia.

We learn from the Paris correspondent of the *Times* that a monument, which has been erected by public subscription to the memory of Pasteur, was unveiled at Chartres on Sunday. This memorial specially commemorates the services of the great bacteriologist to agriculture by his discovery of a specific for anthrax, which resulted from a long series of experiments undertaken at a local farm. The principal feature of the monument is a high relief, which represents Pasteur and his assistants at work. It is the design of Dr. Paul Richer, who, besides being a member of the Academy of Medicine, is a distinguished sculptor.

A Reuter message from Simonstown, dated June 9, states that the German Antarctic ship *Gauss* arrived there on Tuesday morning after a successful year's work in the South Polar regions. She will remain there for three weeks to refit, and will then sail for home. On sailing from Cape Town the *Gauss* called at Kerguelen Island, and landed a party, which reached the floating ice on February 14, 1902. The ship was ice-bound on February 22 in lat. 66½, long. 90. New land was discovered, which was named the Emperor William II. Land. This was covered with ice, with the exception of an inactive volcano. The expedition was ice-bound here for almost a year, and many scientific investigations were carried out during this period. The ship left the ice on April 8 and proceeded to Durban, passing Kerguelen Island, and calling at St. Paul and New Amsterdam Islands. The members of the expedition enjoyed good health, there being no case of sickness, accident, or death during the whole cruise. Prof. Drygalski speaks in the highest terms of the vessel's behaviour, both in the sea and in the ice.

The Hanbury gold medal has this year been awarded to M. Eugène Collin, École de Pharmacie, Paris.

A tablet placed on the wall of Coate House, near Swindon, Wilts, the birthplace of Richard Jefferies, was unveiled by Prof. N. Story Maskelyne on June 6.

The Vega medal of the Stockholm Society of Anthropology and Geography has been awarded to Prof. von Richthofen, of Berlin.

A new serum department of the Jenner Institute, at Elstree, will be opened on July 3. Dr. George Dean is the bacteriologist in charge of the department.

An expedition in charge of Dr. F. A. Cook, of Brooklyn, is, says *Science*, to explore Mount McKinley and other Alaskan mountains under the auspices of the Geographical Society of Philadelphia and the Arctic Club, of New York.

The Geological Society has made the first award of the proceeds of the Daniel Pidgeon fund, founded by Mrs. Pidgeon in accordance with the testamentary directions of her husband, the late Mr. Daniel Pidgeon, to Dr. E. W. Skeats, of the Royal College of Science.

The Brussels *Bulletin Commercial* states that the Municipal Council of Lorient has recently decided to organise an International Exhibition of industry, agriculture, maritime defence, and fine arts, to be held from July to October of this year.

It is reported that a young Austrian doctor named Sachs has fallen a victim to his scientific zeal, having accidentally inoculated himself with plague, from the effects of which he died after a short illness. Such regrettable incidents will occur while scientific research is pursued, and cannot be avoided even by the greatest foresight. There is no likelihood that other cases will develop, as under good hygienic conditions plague is not particularly infectious from man to man, and European doctors and nurses tending the sick seldom contract the disease.

The wide distribution of typhoid-infected blankets that had been used in South Africa is another "regrettable incident" of the campaign, though those who made use of manifestly soiled blankets without washing them cannot be held blameless. On moist fabrics it has been proved that the typhoid bacillus retains its vitality for many weeks or even months.

Science announces that Prof. Florian Cajori, professor of mathematics at Colorado College, has been appointed representative of the United States on the international committee of the Congress for the Study of the History of the Sciences, which will make arrangements for the next meeting of the Congress at Berlin in 1906.

At a meeting of the German Chemical Society on June 4 the presentation of the Hofmann foundation gold medal was made to Sir William Ramsay and to Prof. Moissan, of Paris. This medal is to be awarded once in every five years to a foreigner for distinguished chemical research work. The medal awarded to Sir William Ramsay bears on the obverse the effigy of Hofmann and on the reverse the inscription "For distinguished work in the field of general chemistry, and particularly for the discovery of new ingredients of the air."

By the death of M. Eugène Demarcay at the early age of fifty-one, French science has suffered a severe loss. Although his earlier work was in the field of organic chemistry, his name is best known in connection with his researches on the chemistry of the rare earths. The magnificent specimens of pure salts of neodidymium, praseodidymium, samarium and europium shown by him at the Paris Exhibition of 1900 were the result of years of work of the most painstaking and laborious kind in a field in which he was one of the pioneers, and in which the number of workers is still too few.

An Engineering Conference in connection with the Institution of Civil Engineers will commence on June 16 when Mr. W. H. Maw will deliver the eleventh "James Forrest" lecture on "Some Unsolved Problems in Engineering." On June 17 Mr. J. C. Hawkshaw, president, will inaugurate the conference with a short address to all the sections. The sections with their chairmen are as follows:—(1) Railways, Sir Guilford Molesworth, K.C.I.E.; (2) harbours, docks, and canals, Sir Leader Williams; (3) machinery, Dr. Alexander B. W. Kennedy, F.R.S.; (4) mining and metallurgy, Mr. E. P. Martin; (5) shipbuilding, Sir John I. Thornycroft, F.R.S.; (6) waterworks, sewerage, and gasworks, Sir Alexander Binnie; (7) applications of electricity, Mr. Alexander Siemens.

A practical demonstration of the great power of the Marconi Wireless Telegraph station at Poldhu was given by Prof. Fleming during his lecture at the Royal Institution last week. A large mast had been erected above the Institution, and a complete receiving station set up; messages were received from Mr. Marconi, signalling from Poldhu, and also from a transmitting station at University College. All the experiments passed off without the slightest hitch. Prof. Fleming, in speaking of the future prospects of wireless telegraphy, laid stress upon the fact that there was a large sphere of usefulness open to it which submarine cables and land telegraphs could not touch.

In the House of Commons on Monday Mr. Austen Chamberlain, speaking on the vote for the telegraph Services, referred at some length to the relations between the Post Office and the Marconi Wireless Telegraph Co. He said that the Post Office had no desire to check the progress of wireless telegraphy, nor could they have done so had they wished, as their monopoly did not extend beyond the three-mile limit. The Marconi Co. had, however, asked for too much; in the first instance they asked to be given a permanent and exclusive right to work wireless telegraphy in this country, which he could not grant, especially after the Post Office's experience with the telephone system. He had, however, granted them a private wire to Poldhu on the ordinary terms as soon as they asked for it, but before undertaking to act as their agents for the collection of messages, as was done for the cable companies, the Post Office required that certain conditions should be fulfilled in order to safeguard the Admiralty, and also asked that their experts should be satisfied that the company were able to carry on their business and transmit messages across the Atlantic commercially. He was still waiting an answer to this request, which was made last March. This statement does not quite tally with the accounts which were published last February, and were allowed then to pass uncontradicted. In any case there seems no reason why the Marconi Company should be required to pass an examination set by the Post Office; if people wish to risk sending messages by wireless telegraphy to America, they ought to be allowed full facilities for doing so; the Post Office by taking in the messages need incur no responsibility, by refusing to take them in it renders itself open to the charge of obstructing progress.

Reuter's Agency is informed that a large number of foreign Government and technical delegates will be present at the International Fire Prevention Congress which is to be held in London next month. The congress has been convened by the British Fire Prevention Committee, and will work in six sections, the papers and discussions being in English, French, and German.

We regret to record the death, on May 30, of Mr. Alfred Haviland, aged seventy-eight. He had for many years devoted attention to the geographical distribution of disease in Great Britain, more especially of cancer and heart disease, having published maps and a separate volume on the subject.

We learn from a cutting from the *Brisbane Courier* that Dr. J. P. Thomson, the hon. secretary of the Royal Geographical Society of Australasia, has left Brisbane on a visit to America, Great Britain and the Continent. At a meeting prior to his departure Dr. Thomson was invested with the powers of a delegate from the Australasian Society to all kindred societies in the various centres he may visit.

The death is announced of Prof. Deichmüller, extraordinary professor of astronomy at Bonn University. From the *Athenaeum* we learn that he was born on February 25, 1855, and not long after completing his nineteenth year took part in the German expedition to observe the transit of Venus at Tschifu in 1874. Ever since October, 1876, he had been attached to the Bonn Observatory, and had shown skill not only as an astronomical observer and calculator, but also as a mechanician. He took a prominent part in the teaching at the University, and was made extraordinary professor of astronomy in 1897.

An account of the life and works of the late Prof. Willard Gibbs is given in the Yale *Alumni Weekly* for May 6. It contains a portrait of Prof. Gibbs, and a chronological record of his principal published papers, together with a list of some of his academic distinctions and of the societies of which he was a member. Besides the papers which have done most to make his name known, Prof. Gibbs made important contributions in the domain of physical optics, notably in connection with the electromagnetic theory, but it is only by an exhaustive study of the papers themselves that his work can be adequately appreciated.

M. de Fonvielle writes that at the end of April a balloon belonging to the German Aëronautical Society left Berlin in the morning and landed at Skjolkör, in Seeland, in the afternoon, having crossed the Baltic in nine hours. The balloon was subsequently destroyed by a spontaneous explosion, the result of an electric discharge. The balloon reached an altitude of 4000 metres, where a temperature of -16° C. was registered. During the descent of the balloon the aëronauts observed crystals of snow falling in the car; the electricity generated by the formation of the snow had not had time to escape before the first impact with the earth, because the descent was very rapid. When the pilot took hold of the valve line an explosion occurred and ignited the gas of the balloon.

We have received an advance copy of Merck's annual report for 1902 on advancements in pharmaceutical chemistry and therapeutics. It is a valuable and interesting summary of new preparations introduced for the treatment of disease, and should be in the hands of every medical man. It contains, in addition, notes upon many old remedies and the manner of prescribing them, together with a full bibliography.

It is announced that Dr. Louis Martin, of the Pasteur Institute, Paris, has succeeded in preparing pastilles of an anti-diphtheritic serum for local treatment. The serum is an anti-microbic one obtained by the injection of dead diphtheria bacilli. These pastilles will not replace the injection of the serum, but will supplement the action of the latter, and during convalescence will remove contagion by destroying the diphtheria bacilli in the patient's throat.

Mr. Jonathan Hutchinson, F.R.S., has returned from his tour in India and Ceylon more convinced than ever of the correctness of his theory that leprosy is connected with the consumption of fish. In a letter to the *Times* (May 25) he states that there is no risk whatever from fresh or well-cured fish; the danger comes when decomposition commences. He points out that there is an excessive prevalence of leprosy among the Roman Catholic community in India, and suggests that the fast-day ordinances should be modified, also that the salt-tax should be abolished. The leprosy bacillus has never been found in fish, and Mr. Hutchinson does not explain how it is that fish becomes infective when stale.

Mr. David Houston has examined bacteriologically a number of samples of Irish butter publicly exhibited, and concludes that a bacteriological examination will yield important information concerning the grade of any particular sample of butter. For example, one prize butter contained 260 spores of moulds per gram; the creamery was visited and the walls were found to be covered with a growth of mould. Another creamery sent a "preserved" sample and gained a prize. A specimen of the butter-milk taken from the churn was found to be crowded with putrefying and gas-forming bacteria, together with wild yeasts and moulds; a most undesirable state of things, and revealing why a "preserved" sample was exhibited.

It has been stated by some authorities that the colon bacillus is normally present in the digestive tract of oysters. As this bacillus is undesirable in water used for drinking purposes, inasmuch as its presence may indicate the pollution of such water with sewage, it is not surprising that considerable interest has been aroused by its being reputed to be constantly present in the bodies of these molluscs. Mr. Caleb A. Fuller, of the Brown University, U.S.A., has endeavoured to throw fresh light on the subject by carrying out a systematic qualitative bacteriological examination of the digestive tract in the case of more than 2000 oysters. The specimens were taken from a bank which was free from any trace of pollution, and the colon bacillus was entirely absent from the adjacent sea-water. Sixteen different varieties of bacteria were isolated and examined, but not a single colon bacillus was discovered. This result would seem to indicate that oysters do *not* normally contain the *B. coli communis*, and that if it is found in their digestive tract, suspicion should fall on the breeding ground as having been exposed to pollution.

The report of the Fernley Observatory, Southport, for the year 1902, shows that the work of this well-equipped establishment has been kept up to the usual high standard of efficiency. Mr. Baxendell does excellent work, not only in taking observations, but by instituting useful comparisons between various instruments and methods. The delicate records of the Halliwell self-registering rain-gauge give much satisfaction; this instrument recorded 641 hours of rain against 573 hours by another recording gauge. The comparison of the Campbell-Stokes and Jordan sunshine records gave only a difference of fifteen hours in the year in favour of the latter instrument, a much closer result in tabulating the records than some less careful observers might have reached. Several new tables have been added, dealing with hourly results; one of these shows that the land and sea breezes are unusually marked at Southport, to an extent, the author remarks, of which meteorologists were not aware. The report contains the usual interesting comparison of climatological statistics with other health resorts.

The Meteorological Office pilot chart for June shows that, as a result of the decision of the shipping companies to divert temporarily the steamer routes to the southward, there has been a great decrease in the number of ice reports from the southern extremity of the Newfoundland Bank. With the opening of the St. Lawrence season, however, reports from the northern part of the Bank are becoming more frequent. Another feature of the chart is an illustrated description of the violent storm of wind, rain and snow which, originating near Corsica, suddenly developed great energy on the evening of April 16, and starting off across north Italy, travelled through Austria and Poland to the Baltic and the Gulf of Bothnia.

The twenty-second number of the pamphlet series issued by the West Indian Department of Agriculture forms part ii. of Mr. Maxwell-Lefroy's investigation of "The Scale Insects of the Lesser Antilles." It contains fifty pages of valuable illustrated information on a subject which is of the greatest importance to the colonists, as scale insects are becoming increasingly troublesome in some of the islands. The twenty-third pamphlet contains Mr. John Barclay's "Notes on Poultry in the West Indies." Hitherto the only information which the colonists had on the subject of poultry applied to countries well outside the tropics, but Mr. Barclay, of the Jamaica Agricultural Society, has for several years past devoted personal attention to the rearing of poultry in a tropical climate.

Commander Whitehouse, R.N., has, we learn from the *Times*, returned to England on sick leave from the survey of the southern portion of the Victoria Nyanza. With the recently inaugurated service of steamers round the lake the quickest route to the Tanganyika region will be by way of the Uganda Railway, and a project is on foot for opening a route from Lake Victoria to the north of Tanganyika to connect with the steamer on the last-named lake. Discoveries of gold are stated to have been made both in British and German territory along Lake Victoria, one being near the Lumbas Station of the Uganda Railway at mile 520, and the other in German territory to the east of Speke Gulf.

In the course of a recent article published in the *Recueil de l'Institut botanique de Bruxelles*, Prof. Errera comes to the conclusion that it is not possible for organisms to exist of a size very appreciably smaller than those which can be observed with the highest powers of the microscope now in use. An estimation is made of the number of molecules of certain bodies, such as albuminoids, which are present in a bacterium of given size: the number is of such an order of magnitude that only a few molecules could be present in an organism having a diameter $0\cdot01\mu$, and thus a minimum limit to the possible size is obtained.

The geology of Kalahandi State, in the Central Provinces of India, is described by Dr. T. L. Walker (*Mem.* Geol. Surv. India, vol. xxxiii. part iii.). The entire State is made up of unfossiliferous rocks, mainly crystalline schists, with occasional masses of laterite which cap the broad hills in the south-eastern part of the State. The occurrence of graphite, which may be of commercial importance, is noticed, and it is remarked that the graphite-bearing rocks may become diamond-bearing in places where they have been subjected to intense pressure. In sands from the streams near Bondesor, minute crystals, regarded as diamonds, have been detected.

Although several accounts of the cytological changes which accompany the formation of eggs in the Saprolegniaceæ have been published, the lack of agreement in details and conclusions made it desirable that further evidence should be obtained. This is forthcoming in the experiments and histological investigations which are recorded by Prof. B. M. Davis in the *Decennial Publications* of the University of Chicago. The experiments were conducted entirely with plants bearing oogonia only. A peculiar feature is the appearance of specialised masses of cytoplasm, the cœnocentra, round which the eggs are formed, and which influence the destiny of the nuclei.

A recent issue of *Psyche* contains the full report of a lecture by Mr. F. M. Webster on the "diffusion" of insects in North America. It is pointed out that this diffusion commenced far back in the Tertiary period, and attention is directed to the intimate connection between the insects of North America, northern Asia and Europe which existed at that epoch. Very remarkable is the fact that the modern Rhynchophora of North America agree more closely with their European Tertiary representatives than they do with those of their own country. All this indicates the probability of a former free intercourse between America and Asia, and perhaps also between America and Europe *viâ* the north-east. The lines of insect diffusion on the American continent are treated in some detail.

The heredity of albinism forms the subject of a paper by Messrs. Castle and Allen published in the *Proceedings* of the American Academy. The experiments, which were made with mice, guineapigs, and rabbits, serve to show that albinism, at least in domesticated animals, is not, as often supposed, a sign of weakness and want of vigour. The important result is, however, the proof that albinism, as indicated by its disappearance for a generation and its subsequent reappearance under close breeding, is inherited in conformity with Mendel's law of heredity, and that, in the terminology of that law, it belongs to the category of recessive phenomena. For instance, in the case of mice, it has been demonstrated that the grey hybrids produced by crossing grey with white mice, when bred *inter se*, gave birth to grey and white offspring approximately in the Mendelian ratio of three to one.

In the *Monthly Review* for June Sir Herbert Maxwell reviews the question of animal intelligence; that is to say, the psychology of animals other than man. Commencing with the declaration that he has nothing new to communicate, the author proceeds to observe that the problem resolves itself into three items. (1) Are animals born as automatons, and do they continue as such throughout life? (2) If they are conscious, are their consciousness and intelligence merely the physical products of certain changes which take place during development, and therefore spontaneous in the sense that the development of organic tissue is spontaneous? (3) Is the conscious intelligence esoteric, that is to say, due to the action of an external and superior mandate, or suggestion, acting upon a suitable physical receptacle? After relating a number of instances of animal behaviour bearing upon it, Sir Herbert considers it probable that the first question should be answered as follows, namely, that at birth animals are sentient and unconscious automatons, but that they are also provided with mental machinery ready to respond in a greater or less degree to external impressions. In regard to the second question, evidence is adduced to show that, although the growth of the organ of consciousness may be considered spontaneous and congenital, yet that there are instances where the intelligence of individuals displays a forward movement which may have important effects upon the habits of the race. As regards the third question, the author observes that if it be unphilosophical to attribute to a certain species of moth a knowledge of vegetable physiology, "what is left but to speculate whether the First Cause be not also a Directing Power, with means of communicating his mandates to the humblest of his creatures?"

In the current number of the *Bulletin of the American Mathematical Society*, Mr. E. B. Wilson reviews a very interesting work, Prof. G. Loria's "Ebene Curven," which ought to attract all classes of mathematicians. Besides giving an account (illustrated with numerous figures) of a large number of special plane curves which are of interest for historical or other reasons, Prof. Loria gives a summary of his memoir on panalgebraic curves. A panalgebraic curve is one for which x,y and dy/dx are connected by an algebraic equation; in this class are included a very large proportion of all plane curves which have hitherto been studied, and the fact that Prof. Loria has demonstrated a considerable number of geometrical properties common to them all is very interesting and remarkable.

Messrs. Dawbarn and Ward, Ltd., have published a booklet by Mr. H. Snowden Ward entitled "Profitable Hobbies," containing much useful information upon manual work of various kinds which can be successfully performed by amateurs.

By arrangement with Messrs. Kegan Paul, Trench, Trübner, and Co., Ltd., the Rationalist Press Association has published, through Messrs. Watts and Co., a sixpenny edition of J. Cotter Morison's "The Service of Man. An Essay towards the Religion of the Future."

In the *Physikalische Zeitschrift*, No. 16, p. 457, Messrs. Elster and Geitel discuss the question of the cause of the electrical conductivity of the air in the neighbourhood of phosphorus undergoing slow oxidation. Experiments are described which indicate that the cloud rising from the surface of the phosphorus is not responsible in any way for the electrical conduction. It is also rendered probable by suitably devised experiments that the conductivity is really due to ionisation of the air in the neighbourhood of the phosphorus.

In a recent investigation of the properties of colloidal solutions by Mr. H. Garrett, experiments on the viscosity of solutions of gelatin, silicic acid and albumin have been made which appear to throw considerable light on the nature of such systems. They behave like heterogeneous liquids composed of two solutions having a surface tension at the contact surfaces. At any given temperature the viscosity of these solutions is not constant, since this depends on the surface tension, and this again is a variable depending on the previous history of the solution.

A new refractory material, to which the name "Siloxicon" has been given, is now being manufactured on a large scale by the International Acheson Graphite Company at Niagara Falls. It contains silicon, oxygen and carbon, and is said to give most satisfactory results as a substitute for refractory clays, magnesia, lime and graphite in their application to high temperatures. The product is obtained by the action of carbon on silica at a temperature of 4500–5000° F. in the electric furnace, the quantity of carbon employed being insufficient for the complete reduction of the silica and its conversion into carbide. It is stated that in these circumstances compounds containing all three elements are obtained.

The current number of the *Journal of Physical Chemistry* contains an interesting paper by Messrs. Miller and Kenrick on the subject of the identification of basic salts. The allocation of formulæ to basic salts is apt to be somewhat arbitrary, and there is no doubt that many of the "amorphous finely-divided precipitates" which have been endowed with formulæ and thus raised to the dignity of chemical individuality are nothing more than mixtures of different bodies in proportions dependent upon the conditions of preparation. The authors show that, at any rate for those precipitates the equilibrium of which with the mother-liquor is attained, the question of individuality can in many cases be solved by simple application of the phase rule. The considerations brought forward have been applied to establish the individuality of several basic salts which have been investigated.

In the current number of the *Comptes rendus* there is an account, by M. P. Lemoult, of the preparation and properties of dibromoacetylene. Tribromoethylene, which is easily obtained in quantity by the action of sodium ethylate upon symmetrical tetra-bromoethanes, is heated with alcoholic potash in the absence of air, and the dibromoacetylene collected under water. The distillation has to be carried out in a current of nitrogen, as the substance is spontaneously inflammable in air. Dibromoacetylene cannot be distilled, even in a vacuum, and under certain conditions may explode violently. Bromine and iodine give rise to C_2Br_4 and $C_2Br_2I_2$ respectively, and cautious treatment of the ethereal solution with moist air or oxygen gives rise to oxalic and hydrobromic acids. The first action would appear to be the addition of oxygen resulting in the formation of oxalyl bromide, which is then acted upon by the water present in the usual manner.

We have received from Mr. H. Kondo, director of the Taihoku Observatory, Formosa, valuable results of meteorological or rainfall observations made at fourteen stations in that island and in the Pescadores in the years 1896–1901, also a discussion of the observations (in Japanese) accompanied by diagrams showing very clearly the general characteristics of climate, tracks of typhoons, &c. We extract the following values for Keelung and Koshun, on the extreme north-east and south respectively; these are stations of the second order, but at the central observatory hourly observations are recorded. At Keelung the mean annual maximum temperature is 75°·7, minimum 66°·6; absolute maximum 94°·6 in July, minimum 37°·4 in February; mean annual rainfall about 150 inches. At Koshun the corresponding values are:—mean maximum 81°·7, minimum 71°·1; absolute maximum 92°·1 in July, minimum 49°·6 in February; mean annual rainfall about 92 inches.

The additions to the Zoological Society's Gardens during the past week include two Grevy's Zebras (*Equus grevyi* ♂ ♀) from Southern Abyssinia, presented by Lieut.-Colonel J. L. Harrington, C.V.O.; two Leadbeater's Cockatoos (*Cacatua leadbeateri*) from Australia, presented by Lady Katherine Coke; two Eastern Sarus Cranes (*Grus antigone*), two Thurgi Terrapins (*Hardella thurgi*), a Batagur Water Tortoise (*Batagur baska*), twelve Long-fingered Frogs (*Rana hexadactyla*) from India, five Wall Lizards (*Lacerta muralis*, var. *melisselensis*) from St. Andrae, a Magpie (*Pica rustica albino*), British, deposited; two Common Camels (*Camelus dromedarius*, ♀ ♀) from the Soudan, purchased; a Red-fronted Lemur (*Lemur rufifrons*), two Japanese Deer (*Cervus sika*), born in the Gardens.